

WHAT IS CLAIMED:

- 1 1. A wireless receiver comprising:
2 a receiver for receiving a wireless signal; and
3 a demodulator for generating a log-likelihood ratio as a function of a scale factor;
4 wherein the scale factor is a function of a ratio between energy components of the
5 wireless signal.

- 1 2. The wireless receiver of claim 1 further comprising a processor for determining
2 the scale factor as a function of the ratio between energy components of the wireless
3 signal.

- 1 3. The wireless receiver of claim 2 wherein the scale factor is determined
2 independently of relative strengths and number of multipaths in the received wireless
3 signal.

- 1 4. The wireless receiver of claim 1 further comprising a processor for determining
2 the scale factor as a function of the ratio between energy components of the wireless
3 signal, a noise variance in received data symbols of the received wireless signal, and a
4 noise variance in received pilot symbols of the received wireless signal.

- 1 5. The wireless receiver of claim 4 wherein the scale factor is determined
2 independently of relative strengths and number of multipaths in the received wireless
3 signal.

- 1 6. The wireless receiver of claim 1 further comprising a memory for storing a
2 look-up table such that an index into the look-up table for retrieving the scale factor is a
3 function of the ratio between energy components of the wireless signal.

- 1 7. The wireless receiver of claim 6 wherein the function is a square root of the
2 ratio between energy components of the wireless signal.

- 1 8. The wireless receiver of claim 1 wherein the received wireless signal comprises

2 pilot symbols and data symbols and the ratio between energy components is a ratio
3 between a transmitted energy per pilot symbol to a transmitted energy per data symbol.

1 9. The wireless receiver of claim 1 wherein the receiver comprises a demultiplexer
2 for providing a data signal, representing data symbols, and a control signal, representing
3 pilot symbols, and wherein the ratio between energy components is a ratio between the
4 energy per pilot symbol to the energy per data symbol.

1 10. The wireless receiver of claim 9 wherein the receiver comprises a control
2 signal detector for recovering from the control signal a value for the ratio between the
3 energy per pilot symbol to the energy per data symbol.

1 11. A wireless receiver comprising:

2 a memory for storing a look-up table, such that an index into the look-up table for
3 retrieving a scale factor is a function of a ratio of energy components of a wireless signal;
4 and

5 a decoder, responsive to a signal modified by the retrieved scale factor, for
6 decoding a received form of the wireless signal.

1 12. The wireless receiver of claim 11 wherein the signal is a log-likelihood ratio.

1 13. The wireless receiver of claim 11 wherein the function is a square root of the
2 ratio between energy components of the wireless signal.

1 14. The wireless receiver of claim 11 wherein the received form of the wireless
2 signal comprises pilot symbols and data symbols and the ratio between energy
3 components is a ratio between a transmitted energy per pilot symbol to a transmitted
4 energy per data symbol.

1 15. The wireless receiver of claim 11 wherein values of the look-up table are
2 determined independently of relative strengths and number of multipaths in the received
3 form of the wireless signal.

1 16. The wireless receiver of claim 11 further comprising a control signal detector
2 for recovering from the received form of the wireless signal a value for the ratio between
3 the energy per pilot symbol to the energy per data symbol.

1 17. A wireless receiver comprising:
2 a memory for storing a look-up table, wherein one column of the look-up table
3 comprises values that are a function of a ratio of energy components of a wireless signal,
4 and a second column of the look-up table provides associated values of a scale factor; and
5 a demodulator, responsive to retrieved values of the scale factor, for demodulating
6 a received form of the wireless signal.

1 18. The wireless receiver of claim 17 wherein the demodulator generates a log-
2 likelihood ratio as a function of the scale factor.

1 19. The wireless receiver of claim 17 wherein the function is a square root of the
2 ratio between energy components of the wireless signal.

1 20. The wireless receiver of claim 17 wherein the received signal comprises pilot
2 symbols and data symbols and the ratio between energy components is a ratio between a
3 transmitted energy per pilot symbol to a transmitted energy per data symbol.

1 21. The wireless receiver of claim 17 wherein values of the look-up table are
2 determined independently of relative strengths and number of multipaths in the received
3 form of the wireless signal.

1 22. The wireless receiver of claim 17 further comprising a channel estimator for
2 providing a value representative of the ratio between energy components for use by the
3 memory.

1 23. The wireless receiver of claim 17 further comprising a control signal detector
2 for recovering from the received form of the wireless signal a value for the ratio between
3 the energy per pilot symbol to the energy per data symbol for use by the memory.

1 24. A wireless receiver comprising:
2 a demodulator for demodulating a received signal; and
3 a processor for determining a scale factor as a function of a ratio of energy
4 components of a wireless signal, and for providing the determined scale factor to the
5 demodulator for use in demodulating a received form of the wireless signal.

1 25. The wireless receiver of claim 24 wherein the demodulator generates a log-
2 likelihood ratio as a function of the scale factor.

1 26. The wireless receiver of claim 24 wherein the received form of the wireless
2 signal comprises pilot symbols and data symbols and the ratio between energy
3 components is a ratio between a transmitted energy per pilot symbol to a transmitted
4 energy per data symbol.

1 27. The wireless receiver of claim 24 wherein the scale factor is determined
2 independently of relative strengths and number of multipaths in the received wireless
3 signal.

1 28. The wireless receiver of claim 24 wherein the processor determines the scale
2 factor as a function of the ratio between energy components of the wireless signal, a noise
3 variance in received data symbols of the received form of the wireless signal, and a noise
4 variance in received pilot symbols of the received form of the wireless signal.

1 29. The wireless receiver of claim 24 wherein the scale factor is determined
2 independently of relative strengths and number of multipaths in the received wireless
3 signal.